

# Technology Innovation Project



*Project Brief*

## TIP 287: Reducing Technology Evaluation Costs through a Technology Performance Exchange

### Context

BPA's assessment of new opportunities for demand management requires extensive validation of performance and technical review of new and emerging technologies by skilled engineers. Today, the high cost of technology evaluation limits the potential for innovation, thereby exposing BPA's core business to expensive supply options and other risks associated with the changing nature of electricity demand.

Technology assessment and evaluation is a critical process for managing electricity demand and addresses three key barriers to improving energy efficiency in the built environment.

- **Credibility:** a need to look beyond claims of technology performance for a factual basis upon which to base predictions.
- **Demonstration:** a quality business case requires proof of readiness for full-scale deployment.
- **Applicability:** demonstration in one situation may not be a reliable indicator of performance across the range of applications, often requiring extensive and costly field study.

### Description

With a goal of a 90% reduction in the cost of technology assessment and evaluation, the National Renewable Energy Laboratory (NREL) has secured initial funding from the U.S. Department of Energy (DOE) to develop a web-based resource, called the Technology Performance Exchange. This tool is designed to enable sharing of information related to technology performance among the myriad organizations seeking to improve efficiency of energy use in the built environment. Through many standardized data entry forms (DEFs), an intuitive user interface, and a centralized database, the Technology Performance Exchange will facilitate creation, collection, and exchange of the data needed by these organizations to conduct their own evaluations.

In our view, the Technology Performance Exchange is designed to act as a "hub" for unbiased information. DEFs developed through this project will represent the minimum set of performance measurements and other necessary criteria for a user to perform credible, product-specific evaluation of energy-related performance. Users, such as utilities, vendors, and manufacturers, will use DEFs to submit data in a standardized format.

External individuals and organizations will be able to use this database to quickly identify products that meet their unique requirements.

DEFs will cover a broad range of technologies, potentially including absorption chillers and alternative refrigerants, and sterilization and pasteurization technologies, which are covered in BPA's Food Processing Technology Roadmap. Technology Performance Exchange data will be tightly integrated with existing software suites for simulation of building energy use, such as EnergyPlus, further reducing the cost of technology assessment and evaluation.

### Why it Matters

If left uncoordinated, the operation of multiple, independent technology evaluation programs across the U.S. leads to redundant testing and evaluation efforts and ultimately inhibits the full-scale deployment of new, energy-efficient products in the residential and commercial building sectors. By focusing exclusively on energy use, and using DEFs to create a robust and centralized collection mechanism, energy performance data will be made more readily available.

With access to raw, standardized information through the Technology Performance Exchange, users will be empowered to reduce the time required to assess new products and improve the quality of evaluation. These advancements will help to increase market adoption of energy-saving products.

Additionally, NREL and BPA will work together to develop DEFs to meet the unique needs of electric utilities in the Pacific Northwest, providing an even more focused and direct benefit to the region.

### Goals and Objectives

- The proposed work will produce Web-based products that will reduce the cost of BPA's technology evaluation workloads.
- The DEFs will also be designed to aid in the evaluation and accelerate the adoption of a broad range of technologies, possibly including those that are identified in the BPA Food Processing Technology Roadmap, such as absorption chillers and alternative refrigerants, sterilization technologies, and pasteurization technologies.

- All proposed tasks directly support BPA's stated goal to target an order of magnitude reduction in both cost and time for complete field studies, including research design, contracting, metering, data acquisition, analysis and decision making.

**Project Start Date:** February 14, 2013

**Project End Date:** January 31, 2014

### Reports & References (Optional)

### Links

[NREL - Technology Performance Exchange project](#)

### Funding

Total Project Cost:	\$647,663
BPA Share:	\$323,759
External Share:	\$323,904
BPA FY2013 Budget:	\$222,870

### For More Information Contact:

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### Participating Organizations

National Renewable Energy Laboratory (NREL)  
U.S. DOE – Building Technologies Office  
U.S. DOE – Federal Energy Management Program

